

REMARKS

Claims 1-5 and 30-44 are pending in this application. Claims 1-5 and 30-44 stand rejected. By this response, claims 1, 2, 42 and 43 have been amended. In view of the amendments to the claims and the remarks below, Applicants respectfully request that the rejections be withdrawn and that the claims be allowed.

Claims 1-5 and 30-44 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded by the Applicants as the invention. Specifically, there is a lack of antecedent basis for the term “the surrounding material” in claims 1, 2, 42 and 43. Accordingly, claims 1, 2, 42 and 43 have been amended to provide an antecedent basis for the identified element. Applicants respectfully request that the rejection be withdrawn and that the claims be allowed.

Claims 1-4, 34, 38, 39 and 41-43 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,623,145 to Nuss (“Nuss”) in view of U.S. Patent Application Publication No. 2005/0082479 to Wallace et al. (“Wallace”). The rejection is respectfully traversed.

Claim 1 relates to a method of detecting an explosive material or composition. Claim 2 also relates to a method of detecting an explosive material. Both claims 1 and 2 have been amended to recite the additional step of “differentiating the signal of the detected radiation to compensate for the effect of the surrounding material.” This additional step is supported by at least paragraph [0023] of the specification. As disclosed in the application, a differential of the detected spectral signature may be taken in order to better enable the detection of explosive materials. As explained below, both Nuss and Wallace fail to teach or suggest at least this element of claims 1 and 2.

Nuss relates to a method and apparatus for terahertz imaging. The system of Nuss can differentiate between different materials by analysis of the frequency-dependent absorption, dispersion and reflection of THz signals. Nuss, col. 2, ll. 30-31. However, Nuss does not teach that certain materials, such as water, can mask the presence of target materials (e.g., explosives) by affecting the frequency spectrum of the detected THz radiation. Thus, Nuss also fails to teach that

this masking effect can be compensated for by adjusting the detected signal via, for example, taking the derivative of the signal, thus allowing the detection of target materials despite the presence of masking materials. For at least this reason, Nuss fails to teach or suggest each element and limitation of claims 1 and 2.

Wallace is cited in the Office Action as teaching that the detected signal is adjusted by subtracting a baseline signal from the detected signal. Office Action, p. 4 (citing Wallace, ¶¶ [0033]-[0034]). However, Wallace fails to teach the differentiating of the detected signal, thus also failing to remedy the inadequacies of Nuss. Therefore, neither Wallace nor Nuss teach each element and limitation of claims 1 and 2. Claims 1 and 2, then, are allowable over the combination of Nuss and Wallace. Claims 3, 4, 34, 38 and 39 depend from claim 1 and are allowable for at least the same reasons that claim 1 is allowable. Claim 41 depends from claim 2 and is allowable for at least the same reasons that claim 2 is allowable.

Applicant notes that the step of “differentiating the signal of the detected radiation to compensate for the effect of the surrounding material” would not have been obvious to a person of ordinary skill in the art. In the recited invention, the step of differentiating the signal allows a user to distinguish between the explosive material or composition and the surrounding material, without prior knowledge of the identity of the surrounding material. There is no evidence provided in the record that would support a conclusion that the development of a compensating technique which does not require prior knowledge of the surrounding material is obvious. To the contrary, the cited prior art demonstrates that at least this recited step is both novel and non-obvious.

Claims 42 and 43 both recite an explosive detection apparatus that includes an “analyser for adjusting and differentiating the detected radiation signal to compensate for the effect of the surrounding material and to determine if one or more predetermined features of an explosive material exists.” As explained above, neither Wallace nor Nuss teach or suggest “differentiating the detected radiation signal to compensate for the effect of the surrounding material.” Nuss and Wallace are silent regarding taking a derivative of the detected signal.

For at least these reasons, claims 1-4, 34, 38, 39 and 41-43 are not rendered unpatentable by Nuss, and are instead allowable. Applicants respectfully request that the rejection be withdrawn and the claims be allowed.

Claims 5, 30-33 and 44 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nuss in view of Wallace and U.S. Patent Application Publication No. 2001/0033636 to Hartick et al. ("Hartick"). The rejection is respectfully traversed.

Claim 30 depends from claim 1, which, as explained above, is allowable over Nuss and Wallace. Claims 5 and 31-33 depend from claim 2, which is also allowable over Nuss and Wallace, as explained above. Claim 44 depends from claim 42, which is allowable over Nuss and Wallace as explained above. Thus, both Nuss and Wallace fail to render claims 5, 30-33 and 44 unpatentable. Hartick also fails to remedy the inadequacies of the Nuss/Wallace combination.

Hartick relates to a method and apparatus for detecting explosives in luggage. Hartick, Abstract. However, Hartick fails to teach or suggest a method that includes differentiating the signal of the detected radiation to compensate for the effect of the surrounding material. Instead, the Hartick method only determines whether detected radiation indicates the presence of an explosive; the Hartick method does not explore the technical difficulties associated with distinguishing a detected signal arising from an explosive material composition from detected radiation arising from surrounding material. Specifically, Hartick fails to teach the taking of a differential of the detected signal.

Because neither Nuss, Wallace nor Hartick teaches each element of the independent claims from which claims 5, 30-33 and 44 depend, claims 5, 30-33 and 44 are allowable over the cited combination. Applicants respectfully request that the rejection be withdrawn and the claims be allowed.

Claims 35-37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nuss in view of Wallace, Hartick and U.S. Patent No. 6,605,808 to Mickan et al. ("Mickan"). The rejection is respectfully traversed.

Claims 36 and 37 depend from claim 1. Claim 35 depends from claim 2. As explained above, neither Nuss, Wallace nor Hartick teach or suggest each limitation of claims 1 and 2, and thus claims 35-37. Additionally, as explained below, Mickan fails to remedy the shortcomings of Nuss, Wallace and Hartick.

Mickan, which also relates to a diagnostic apparatus that uses terahertz radiation, is silent regarding the use of the Mickan apparatus to distinguish radiation received from the target object from radiation received from surrounding objects. Though the Mickan apparatus may be used for, *inter alia*, chemical analyses (*see* Mickan, col. 1, ll. 9-12), there is no mention in Mickan about the technical challenges involved in the distinguishing of explosive materials from surrounding materials. Specifically, Mickan does not teach or suggest the act of differentiating the signal of the detected radiation to compensate for the effect of the surrounding material.

Because the cited combination fails to render unpatentable claims 1 and 2 from which claims 35-37 depend, claims 35-37 are allowable over the cited combination. Applicants respectfully request that the rejections be withdrawn and the claims be allowed.

Claim 40 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Nuss in view of Wallace and U.S. Patent No. 36,201RE to Miller (“Miller”). The rejection is respectfully traversed.

Claim 40 depends from claim 1. As explained above, claim 1 is not rendered unpatentable by the combination of Nuss and Wallace for at least the reason that both Nuss and Wallace fail to teach or suggest the step of “differentiating the signal of the detected radiation to compensate for the effect of the surrounding material.” As explained below, Miller also fails to teach at least this element of claim 1, and hence, claim 40.

Miller is cited in the Office Action as teaching the detection of explosives by use of a time of flight (“TOF”) method. Office Action, p. 8. However, no where does Miller explain that the Miller device is used to distinguish between explosive material and the materials surrounding the explosive materials. Specifically, Miller does not teach or suggest the act of differentiating the

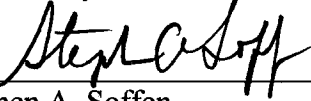
signal of the detected radiation to compensate for the effect of the surrounding material. Therefore, Miller also fails to remedy the shortcomings of both Nuss and Wallace.

Because neither Nuss, Wallace nor Miller, individually or combined, teach each of the elements and limitations of claim 1 (from which claim 40 depends), claim 40 is allowable over the cited combination. Applicants respectfully request that the rejection be withdrawn and that the claim be allowed.

In view of the above amendment, Applicants believe the pending application is in condition for allowance. If there are any additional charges in connection with this filing or any subsequent filings (including but not limited to issue fees), the Examiner is respectfully requested and authorized to charge Deposit Account No. 04-1073 therefor under Order No. M0025.0339/P339.

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Respectfully submitted,

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